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and Photographic Enlarger
Edited by J. Hay Taylor
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NOTICES.

The *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price Two Pence, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

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NOTES.

The result of projecting a slide wrong way up.—Just before the start of a children's service in a populous London district the Rev. Father Dolling heard sounds of laughter coming from the church. On leaving the vestry to ascertain the cause of the unseemly mirth, he discovered that the lantern operator had misplaced a slide, and Adam and Eve were standing on their heads on the screen. The operator tried to remedy it, but again our first parents appeared upside down, and then a shrill treble voice started singing, "There was Brown, upside down, with his legs sticking up in the air." And all the children took it up.

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The Abingdon Acetylene Generator.—Mr. R. J. Moss, of the Abingdon Acetylene Illuminating Co., Ltd., 97, Great Hampton Street, Birmingham, has taken over the sale department of this company, and in addition to the Abingdon generator he intends handling others, including Incanto, Aladdin, Liver, etc. Purchasers will thus be enabled to make a selection of apparatus from a large and varied stock. Mr. Moss is also bringing out a dissolving tap for acetylene, which he informs us will be as complete as dissolving taps used in connection with limelight.

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Lantern Slides.—Mr. T. T. Wing, of Chatteris, Cambs., has sent us several slides of his make and colouring, such being a sample of the class which he undertakes. The slides are clear, the tone good, and the colouring carefully executed. Among new sets of slides brought out by Mr. Wing is "In His steps; or, what would Jesus do?"

◆ ◆ ◆

National Photographic Exposition Company.—The foregoing company has been incorporated in New York, with the object of running an annual exhibition of photographs and apparatus. The first exhibition will take place in Maddison Square Gardens, New York, next October. The British Government are to loan 300 large photographs of places of historical interest in Great Britain.

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How a Lens is made.—Messrs. Goerz have prepared, and are willing to lend to photographic societies, a set of 40 slides, showing the various processes of manufacture of lenses as carried out at their factory in Berlin. Full particulars may be obtained from their London office at 4 and 5, Holborn Circus.

◆ ◆ ◆

Exchange Postal Negative Club.—We have received a communication from Mr. G. F. Gregor Grant, the hon. sec. of the Exchange Postal Negative Club, in which he explains that there are one or two vacancies which our readers may like to fill. The objects are the circulation of ¼-plate or smaller negatives for the purpose of slide making, etc. The membership is limited to 12. Mr. Grant will be pleased to supply full particulars. His address is "Aviemore," Priory Gardens, Tooting Bec Common, London, S.W.

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Portman Rooms Exhibition.—The second National Photographic and Allied Trades Exhibition will be held in the Portman Rooms, London, W., from April 27th to May 5th. Letters and enquiries should be sent to the secretary, Mr. Arthur Brookes, Harp Alley, Farringdon Street, E.C.

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Isle of Man.—The Board of Advertising have arranged to give several lantern lectures illustrative of Manx scenery throughout the chief towns in England during the winter months.

Aurora Lantern Slide Club.—Application is invited from good slide workers as members of the above club. The club is for the mutual criticism and exchange of lantern slides. It has been in existence for about four years, and has had a prosperous career. The hon. sec., Rev. F. Partridge, St. Clether Vicarage, Egloskerry, R.S.O., Cornwall, will give full particulars to applicants.

◆ ◆ ◆

Fatal Acetylene Explosion.—On the 7th ult. Mr. Alexander, manager of the Decorated Tile Company at Tutbury, was examining a part of an acetylene generating apparatus, when a violent explosion occurred fracturing his skull, from which injuries he died in a few hours. The supposed cause was the dropping of a hot cigarette ash into a chamber containing a mixture of acetylene and air.

◆ ◆ ◆

Transvaal Slides and Wireless Telegraphy.—To meet the large demand for sets of slides pertaining to two of the most popular subjects of the day, Messrs. Newton & Company, of Fleet Street, have published excellent sets of slides. At the time of writing about 50 slides of the Transvaal are ready, and are being added to daily. The set on wireless telegraphy consists of 25 slides.

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Royal Photographic Society.—As an experiment, during the present session a lantern section is to be opened in connection with the Royal Photographic Society. The lantern evenings will be held on the first Tuesday of each month from November to April, and the first will take place on the 7th inst., at 5A, Pall Mall East, London, S.W., when Mr. J. J. Vezey will give a lecture on "Some Mediæval Towns in Germany," illustrated by a number of lantern slides. The subsequent lectures will be given at the headquarters of the Society, 66, Russell Square, W.C.

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Traill Taylor Memorial Lecture.—The memorial lecture will be given this year on the 14th inst., at 8 p.m., by Major-General Waterhouse, at the headquarters of the Royal Photographic Society, 66, Russell Square, W.C., the subject being "The Daguerrotype Image and its Lessons." Last year some little difficulty was experienced in selecting a suitable photograph of the late Mr. J. Traill Taylor from which to make the presentation medal, but this we understand is now completed. All interested are invited to attend.

A Lantern Entertainment well worth a Visit.—Many lantern entertainments are so bad or commonplace that they are not worth visiting, but this cannot be said of the lantern lecture by Messrs. West & Son, which is being given every afternoon at 3, and on Wednesday and Saturday evenings at 8, at the Polytechnic, Regent Street, W. The subject is "Our Navy." The description is given in an interesting style by Mr. A. J. West, which is to the point without any tedious statistics. The pictures, which include about 40 sets of "animated," are perhaps the finest collection ever given at any one entertainment. Some of the best subjects are physical exercises (with band accompaniment), cutlass exercise (with audible hits), gun firing, yacht races, etc. All the fakes possible, such as the boom of the guns, the switch of the water, and so on, are realistically manœuvred behind the scenes, and the two hours of entertainment goes along without a hitch; yet the time seems short, and one wishes there had been more. To those of our readers who are within reasonable distance of Regent Street, we would say visit this show, and you will see some of the most realistic effects ever shown at an entertainment.

◆ ◆ ◆

Art Historical Lantern Slides.—Messrs. Ed. Liesegang, of Dusseldorf, are issuing lantern slides from well-known paintings by Dürer, Van Dyk, Hals, Holbein, Mich. Angelo, Millet, Murillo, Raphael, Rembrandt, Rubens, Teniers, Velasquez, Da Vinci, Watteau, and many others. The relative colour values are well rendered in the transparencies.

◆ ◆ ◆

Congratulations.—Our congratulations to Mr. F. Brown, the popular limelight jet maker and mechanical engineer, of 13, Gate Street, London, W.C., on the occasion of his marriage to Miss Margaret Smith, which important event took place on the 11th ult.

Hints on Lantern Lectures.—II.

By THE REV. H. BEDFORD PIM, M.A.

So much for the machinery, its expense, its difficulties, and its dangers. What are its capabilities? The lantern should not be regarded simply as an adjunct to the lecturer. The writer frequently used a lantern for helping to impart religious instruction to the children in the schools of the London parish in which he worked for some time. This is very easy to arrange during the winter months; few children, or teachers either, are adverse to the religious instruction on certain days being put at the close of afternoon school. The presence of a lantern ready for use in a rural deanery would be of great assistance to speakers on behalf of missions and other important objects, who find it increasingly harder to interest people by sermons, but who value the chance of talking more familiarly to people and showing them what mission work really is, as can well be done pictorially. Night schools and technical classes can be helped in this way, and of course the Christmas entertainments must not be forgotten. To speak last of all, more particularly of ourselves, if the plan of the ruri-decanal lanterns were adopted one of the chief hindrances in the way of extending our Church History Lectures would be removed, namely, the necessarily high charge we have to make when lantern and operator, as well as lecturer, have to be sent into the country, far away from London perhaps, for a single night. Many other difficulties which formerly stood in the way of the arrangement of lectures in the country can now be removed with little trouble. The Committee issue books of lectures and lecture notes on the most important period of

English Church History.

A long and short course can be selected from. A set of four lectures on the early history of the Church from Pentecost to the coming of Augustine has recently been added to the Committee's list of publications. Church architecture is fully illustrated by our slides, and we have in view special selections of slides to be used with the well-known series of Diocesan Histories published by the S.P.C.K. The field of illustrative instruction is ever widening, and absence of demand alone holds back the supply.

These hints have dealt exclusively with the lantern; with the lecture we do not make the same attempt. So much, of course, depends upon the lecturer and the amount of time and work he is prepared to put into his subject. Let these few rules, not hints, suffice. Let one lecture illustrate one point and let it be clearly set out. The pictures for the lecture, and not the lecture for the pictures. Don't tire out the audience; leave so much unsaid that they may ask to come again. Combine plain and coloured slides, this relieves the eye and avoids the risk of offending artistic taste. Many slide subjects are absolutely unsuitable for colouring. Let the lecturer master his slides beforehand, so that he can recognise them at sight on the screen. Learn or work up the lecture and don't read it.

Optical and Mechanical Effects for the Lantern.—No. XII.

By **EDMUND H. WILKIE.**

(Late Royal Polytechnic Institution).

HAVING determined the form of the lightning flash, and the manner in which it should be prepared, let us now consider the best methods of exhibiting its effects upon objects which may unfortunately for themselves stand in its path.

There are widely diverse opinions as to the best thing to do when a lightning storm takes place. Some people open the windows, some shut all the windows and doors, many cover up the looking glasses and other bright objects; but it all amounts to the same thing in the end. If the objects are in the path of the electrical discharge they will be destroyed, and if not they are safe without any precautions.

If I may dwell upon this subject for a moment without abusing your patience, I should like to tell you what my friend the late Mr. J. L. King was accustomed to tell audiences at the Polytechnic was the

safest place in a storm.

I do not think many in the audience quite considered him to be in earnest, but he used to say: "The safest possible position during a lightning storm would be to don a suit of polished steel armour, covering the entire body, and then to take a seat in the middle of an open field with one's feet in a pool of water." No doubt the advice was good, but the remedy would certainly be almost as bad as the disease.

On the screen we should have a complete change of picture when the lightning flashes, and when three lanterns are available this can be accomplished in perfection. One effect we have used in this way consisted of two views of "Thunder Peak" in the Rocky Mountains; the first showing the scene in its normal condition, and the second showing the devastation wrought by the lightning striking some trees, uprooting them, and setting them on fire.

When working such an effect as this, no mechanical shutters can be used with such perfect results as the palm of the hand or a piece of blackened card.

If the first view is placed in the top lantern, and the second view in the middle, both should be turned full up and the card held over the centre nozzle. The flash can be shown from the bottom lantern, and while the spectator's eyes are dazzled by its blinding glare, the card is simply shifted up about 6 inches, covering the top objective and uncovering the centre showing the damage done. This will be found far more effective and perfect in working than by the ordinary flashing shutters, which occupy two hands, and, besides, it possesses the advantage of being perfectly noiseless in operation.

One of the most used and favourite subjects for the lantern is the "Ship on Fire," in which the ship is struck by lightning and afterwards found to be on fire. The set was originally designed to illustrate Henry Russell's grand descriptive song entitled "The Emigrant Ship," and although it has now been in use for a considerable number of years, has been altered very little from time to time, the main designs remaining the same. In this case the ship is seen after the storm on a comparatively calm sea by moonlight, and a rack effect showing the flames and smoke is projected from another lantern. This rack effect has a slip glass attached, which is partially covered with opaque varnish, in order that it may be drawn over the rack flames and cut them off or disclose them as required. It is used by placing it in the lantern with the opaque slip over the flames, when by drawing the slip slowly outwards the flames appear first at the port-holes, then on deck, and finally envelope the whole vessel and rigging. Although not used in the ordinary sets, many little additions could be made to this effect, such as falling sparks, flickering flames, etc.

With this rack movement it will be apparent that only a portion of the picture can be enveloped in flames, as when the rack is revolved, one side of the glass ascends while the other descends, but in some cases it is requisite to cause the flames to ascend from both sides of the view at the same time.

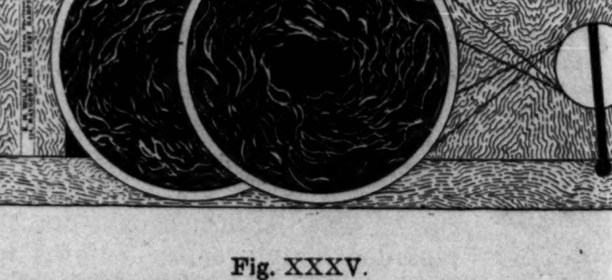


Fig. XXXV.

This was the case with the Great Fire of London, painted by Mr. Childe for the late Polytechnic Institution, for in this view the flames extended from side to side of the scene. Fig. XXXV. shows us how this may be arranged on one slide. Two large glass wheels with brass edges, 10 inches in diameter, were arranged in a frame so that they overlapped half way across, and as they both revolved in the same direction, enough ascending motion was obtained to cover the whole width of the slide.

The top glass, by which I mean the one we see in its entirety in our diagram, was painted a little more heavily than the under one, as a portion of the under smoke and flame had a descending motion where the two wheels overlap, and to overcome this the top painting was very vivid.

The effect upon the screen was very fine and extremely imposing, especially when accompanied by appropriate music and all those acoustical effects which formed a distinguishing feature of the dioramic entertainments at the Polytechnic. Many effects have been produced to illustrate a "House on Fire," but they all fail in one important particular—the fire continues to pour forth from windows, doors, and through the roof, but makes no **material progress**; as it appears on the screen, so it remains until dissolved off. This being the case, the writer has been at work for some time past endeavouring to produce a picture in which the building shall gradually become destroyed in front of the audience, and hopes to have more to say on this point very shortly.

In showing fire effects it is a very common fault to turn the rackwork too quickly; but fire and smoke, especially when viewed from a distance, do not appear to mount into the air at a great speed—they take matters very leisurely, and this should always be borne in mind, otherwise the effect is apt to seem unreal.

While upon these revolving effects to show elemental disturbances, it is a natural transition from fire to water again. We treated of water coming down from the clouds in our last paper, now let us consider the best methods of illustrating bodies of falling water, such as waterfalls.

The best way of realising these effects in a really natural manner is to consider in the first place the size and position of the falls, for we must not lose sight of the fact that the further we are away from any object the slower is its apparent motion. Thus, a fall such as Niagara appears to a close observer to rush by at almost lightning speed, but viewed from a great distance it seems to flow much more slowly and evenly.

Let us take this kind of waterfall first, and consider that we wish to make an effect to give it the appearance of actually flowing. The ordinary practice would be to take a rack frame and build up the effect on this, but such a motion would not give us the result we wish to obtain; it is too quiet and too slow.

Fig. XXXVI. shows us what really is required. It consists of a frame with a blackened glass fixed into it, above which revolves a circular disc of glass, which should be of as large a diameter as the width of the frame will possibly allow. This disc is pivoted in the centre, and has attached to it a small wooden pulley, from which a band is attached to a multiplying wheel moved by a handle.

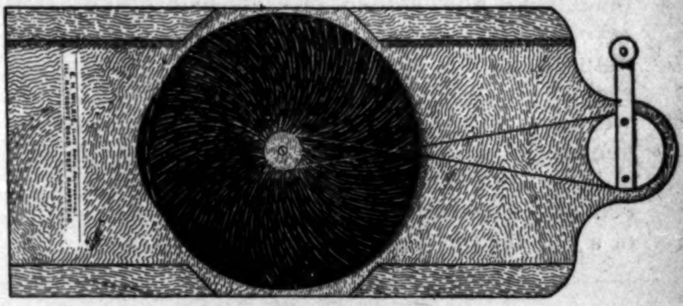


Fig. XXXVI.

The glass disc is blackened out all over, and a number of curved lines as shown in our diagram are etched out of the black. On the fixed glass is the shape of the waterfall, also etched out of black, and the course of the water indicated in the same manner. When the circular glass is revolved the lines pass one over

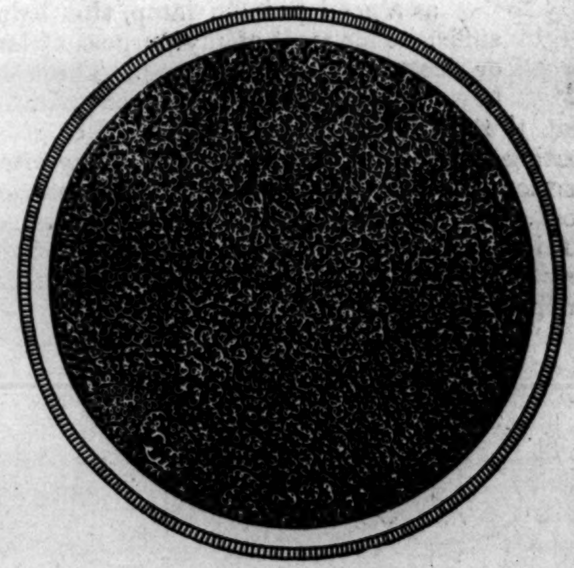


Fig. XXXVII.

the other, giving the appearance of descending water, and it will be appreciated at once by glancing at the diagram that the motion could be made of any degree of rapidity.

Now let us turn our attention for a moment to a waterfall on a smaller scale, such as we find in many cases in hilly countries, and in which the fall of water is neither so vast nor so rapid, and which are probably viewed from a greater distance, simply forming a portion of the landscape. For this purpose the ordinary rack frame will suffice, the fixed glass being blackened and etched out as before, but the revolving glass being treated in a different manner, as the black colour, instead of being etched in large semi-circular sweeps such as we see in Fig. XXXVI., should be prepared as shown in Fig. XXXVII. This will give an entirely different effect, and when used with the ordinary rack frame is well adapted for waterfalls of a quieter and less boisterous character.

* * *

A Hydrogen-fed Incandescent Light for the Lantern.

By **THOMAS BOLAS, F.C.S., F.I.C.**

THE light I am about to describe has only been used by me in the small form detailed, in which form it gives about the same screen effect as a good paraffin lamp, this being sufficient for most of my purposes (class or lecture demonstrations). There is, however, the advantage over paraffin that the heating effect is trivial, the great heating effect in the case of paraffin being often a serious inconvenience in lecture demonstration work. If made on a larger scale, as suggested, I think that the hydrogen incandescent light may prove one of the most useful substitutes for limelight.

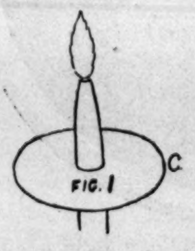


FIG. I

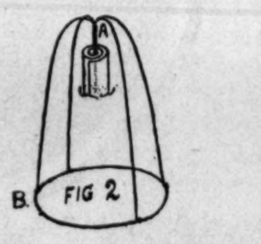


FIG 2

A hydrogen flame about 1 inch in height is allowed to play on a coil ¾ inch high and ⅜ inch in diameter, made from the material of an ordinary commercial incandescent mantle, the hydrogen flame and the miniature mantle being shown by Figs. I. and II. The coil of mantle must obviously be made of the unburned material, and if this is moistened by spray and allowed to dry while coiled, it will stand sufficiently in shape when dry. An ordinary mantle will make six of the miniature mantles. Four thin platinum wires twisted together at A, Fig. II., pass downwards through the coils, after which the ends are turned up as shown, the base ring being of brass. When the mantle is in use this base ring rests on the plate C, Fig. II., which is brazed on the hydrogen tube. The hydrogen jet is a plain brass jet with a platinum nozzle $\frac{1}{18}$ inch in diameter, and having a round hole about $\frac{1}{50}$ of an inch in diameter. The hydrogen supply is from a glass automatic generator of the usual laboratory type, like that shown in Fig. III., the capacity of the lower vessel being about 40 fluid ounces. A, Fig. III., is a short length of lead pipe open at both ends, and as large in diameter as possible, consistently with passing easily through the neck of the glass vessel, and the object of this is to keep a clear way for the lower end of the funnel-like upper vessel. B, Fig. III., represents some pieces of earthenware packed round the central lead tube, and serving as a support for about 1 lb. of zinc, C, this zinc being in rough cast lumps, or as cuttings from thick plates like those used for batteries. The funnel-shaped vessel D is a gas jar holding about 30 fluid ounces, into which is fitted (by means of an india-rubber collar) a descending glass tube, E, which should be about an inch in diameter outside, and about ⅛ inch thick in the wall, this funnel vessel being fitted to the lower vessel by means of a good india-rubber cork. An equivalent apparatus in which all the joints are of glass, ground stopper fashion, can be obtained from those who sell chemical apparatus. The acid charge may be sulphuric acid diluted with five times its bulk of water, or preferably, commercial strong hydrochloric acid mixed with one-third of its bulk of the

FIG 3

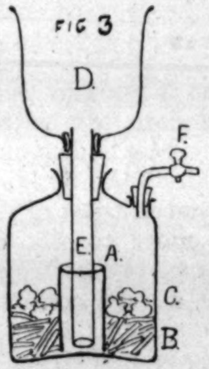
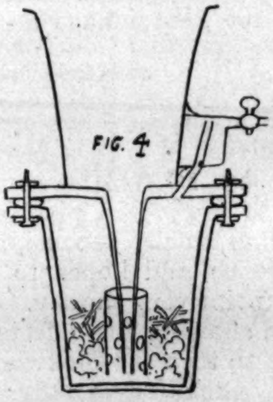


FIG. 4



exhausted liquid from a previous operation. The stopcock F being open, and the acid charge poured into the funnel, the liquid will run down into the lower vessel, and acting on the zinc, will generate hydrogen freely. If now the stopcock is closed the gas will force the acid up into the funnel, and the generation of gas will stop, so the apparatus becomes automatic. Before lighting the hydrogen, care must be taken that the air is sufficiently chased out of the lower vessel, or the flame may pass back, and an explosion result, the most convenient test being to pass a stream of the gas upwards into an inverted test tube, and having turned off the gas, to apply a light. All is safe if the gas in the test tube burns quietly without explosion.

This device is very economical of gas, as between slide and slide the hydrogen may be turned off all but a minute bye-pass stream As a substitute for this bye-pass a tuft of platinised asbestos, or a ring of spongy platinum may be supported on the top of a mantle coil, in which case the hydrogen should ignite spontaneously when turned on, but this latter arrangement is scarcely certain enough to be relied on, as the ordinary conditions of working lead to the deterioration of the platinum by minute traces of chloride of zinc carried over with the hydrogen.

I feel sure that a somewhat larger device of a similar kind would prove very convenient for country exhibitions. In this case I would suggest the generator being made something like Fig. IV., best of lead "burned" together, or when lightness is a consideration, of copper, tongued and brazed, a capacity of five pints for the lower vessel being probably sufficient for all purposes.

* * *

Photography for Lanternists.

By EDGAR CLIFTON.

AS "all sorts and conditions of men" now manipulate cameras of some sort, it may come as a surprise to them to learn that there are many skilled users of the sister instrument, the optical lantern, who have never taken a photograph, even to the extent of "pressing the button," in their lives, but it is nevertheless a truth. The aim of the following remarks will be to point out the simplicity of the operations necessary for making photographic lantern slides and the smallness of the initial outlay, provided that only this single branch of work is to be undertaken.

We will assume that our lanternist wishes to obtain views, architectural details, reduced copies of engravings, manuscripts, coins and medals, natural history specimens, and the like upon the standard-sized slide 3¼ by 3¼ inches.

The first step is to procure the necessary apparatus, and here we have to warn our lanternist against the alluring little black boxes, which are so generally known as "detective" or "snapshot" cameras. Fine definition over every plane of a view is a desideratum in lantern slides, and to obtain this a small aperture and a somewhat long exposure is necessary; the power to compose and focus the view upon the ground glass is also almost indispensable. There are hand cameras in which these advantages can be obtained, but their cost is usually greater than a beginner would feel justified in expending. Therefore we would say, procure a ¼-plate (4¼ by 3¼) stand camera, which may be purchased at any price from twenty-one shillings upwards; several firms of good reputation sell a simple but serviceable outfit for a guinea. This should comprise camera, lens, **double dark slide,** and tripod stand. In the cheapest sets the lens will be what is termed a single or landscape lens, and is popularly supposed not to be suitable for architectural subjects, on account of the slight curvature of the marginal lines. This defect has, however, been made the subject of much unnecessary fuss, and except for the most difficult subjects may be disregarded. The writer has shown many architectural slides from negatives made with a single lens of the "quick-acting stereo" type to the most critical audiences with perfect success. For all that, however, he would recommend the purchase of a double or rectilinear lens, which is more useful for interiors, copying diagrams, or any subjects in which straight lines occur at the extreme edges of the picture. If it be intended to copy small diagrams, or to photograph smaller objects, as coins, etc., in their natural size, care must be taken to procure what is known as a "double extension" camera—that is to say, with a bellows of sufficient length to allow of the lens being placed at double its focal length from the plate. As a rule, the ordinary ¼-plate lens has an equivalent focus of from 5 to 5½ inches, so that a bellows 11 inches long will meet all requirements. The only other pieces of apparatus which are absolutely necessary are a lantern slide printing frame costing one shilling, two ¼-plate xylonite dishes at 4½d. each, a small glass measure, and a ruby lamp. A packet of "slow" plates of some good brand for negatives, a packet of 3¼ by 3¼ slow lantern plates, a bottle of single solution hydrokinone developer, and a pound of hyposulphite of soda will complete the outfit, half a dozen shillings covering the total outlay. It is not desirable here to go into the details of focusing, exposure, development and the like, as far as the negative is concerned, for are they not written in a multitude of books purchasable at sums varying from one penny upwards? What we have to do is to point out how the very simple apparatus which has just been described is to be made to serve all the purposes of producing both negative and slide.

The negative plate having been exposed according to instructions, is developed with the hydrokinone developer, well washed, and fixed in a solution made by dissolving 3 ozs. of hyposulphite of soda in 1 pint of water. The used developer, which is now of course diluted, is preserved in a small tightly corked bottle, which it should nearly fill to the cork, until the negative has been well washed and dried, and the process of slide making proper can be attempted. This, like the development of the negative, must be conducted in

the dark-room,

but owing to the slight sensitiveness of the plates, an abundance of ruby or even of yellow light may be used. The negative is adjusted in the printing frame, so that the portion which it is desired to include in the slide is over the square opening; the loose back is removed, and a lantern plate dropped into the place provided for it. Great care should be taken that the film of the negative and that of the lantern plate are in absolute contact, and that neither are scratched in the process of adjustment. The back of the printing frame is then replaced and carefully fastened. All is now ready for exposure, which may be conveniently effected by covering the printing frame with a black cloth, and carrying it into a room lighted by an ordinary gas burner, or petroleum lamp. Placing it at a fixed distance, say 2 feet from the flame, the cloth is removed for the requisite time, say 20 seconds for an average negative, and quickly replaced, while the frame is being returned to the dark-room for development. This is done in the same way as for negative making, commencing, however, with the used solution, and strengthening it with fresh developer, if it is found necessary. If the exposure has been correct, the image should appear in a few minutes in all its natural effect of light and shade, then gradually become darker until all the shadow detail is buried, and only the highest lights remain pure. As soon as these show a slight veil, development should be arrested by well washing the plate in clean water, and transferring it to a fresh quantity of the hyposulphite solution, in which it should remain for at least five minutes after all the unaltered silver has disappeared. It should then be thoroughly washed, and set on edge to dry in a place as free from dust as possible. Dust in any stage of the proceedings is a much more serious foe to the slide maker than to the ordinary amateur, as every speck or defect is magnified many times on the screen. It now only remains to select a suitable mask, and to bind the slide with a cover glass as free from blemishes as may be; spoilt plates which have had the film cleaned off answer as well as the specially advertised article for this purpose.

It must not be supposed that the foregoing remarks are in any way intended to be comprehensive. Slide making is with many experts a life study, and the worker who aims at the utmost refinement in tone and quality of image will find that he has undertaken a task which requires both industry and intelligence of no mean order.

There are two classes who take up photography—those who take a delight in the actual manipulations, and those who use it only as a means to an end, to obtain pictures which they cannot purchase; and it is for the latter class that this outline of the necessary operations is written.

Living Pictures of Long Ago.

By GEORGE ELCOMBE.

IT was the heavy villain who said, "'tis forty years since last I smiled," and "'tis forty weeks since last I tasted food." The writer can say, 'tis forty years since his *pater* gave him a lecture, and tried to explain the phenomenon of persistence of vision, which has since been proved to be the fundamental basis of all living pictures. It is only some forty months since, as it were, the living pictures of the present were seen by him, though 'tis forty years since his *mater* would amuse him, together with his brothers and sisters, in demonstrating, as she twiddled and twirled those little bits of cardboard, the theory of persistence of vision, or, if kind reader you prefer it, showing us children what optical delusions were.

In this short article it is not the intention of going into the whys and wherefores of living pictures as we now know them, but to recall the fun and interest the youngsters got, and can get, out of a few pieces of card, a reel of thread, a black lead pencil, or what is better, pen and ink, bits of tin, and so on.

Of course everybody knows that there are two sides to a coin, and that by holding it in the hand it is absolutely impossible to see both sides at the same time, but this can be done by spinning it into the air, and this simple experiment was discovered I believe by that eminent scientist, Professor Herschel, and practically the spinning coin of long ago explains the living pictures of to-day.

Another clever delusion of this type was the Optical Marvel, a scientific toy I have lost sight of for some time past. The Optical Marvel cost to manufacture say a penny, at the outside twopence, and retailed at three or four and sixpence, and in truth was cheap at that price. A revolving fan on a tin cylinder, with a rubber tube to blow through which set the fan spinning horizontally. The top or table of fan is fitted with a pivot at its centre, upon which is placed the objects, which are bits of tin, bent to form a half section of almost anything round, such as vases, flower pots, cups and saucers, an old man's white hat with a black hat band, etc. It is somewhat

difficult to guess

what these strange shaped pieces will represent when spinning. Placing the hat on spindle, and setting it spinning, the company are asked what it is. The children shout at once "a man's white hat." "So it is," you say, at the same moment placing your finger in the centre of the hat, causing much fun because both finger and hat are seen at the same time. Endless interest can be thus obtained, especially if one of the family be clever enough to bend the tin strips to shape. A child's drawing book will be of service in managing this.

The cardboard pictures above referred to illustrate clearly how parts of a picture, when blended together, can form a whole, and a pennyworth of white cards will be ample for fifty experiments.

These can be made any size, but for example we cut one 2 inches long and 1½ inches wide. An eighth of an inch from each end of the card, and central, make two pin holes, and put a length of thread so when turned between thumb and finger of each hand the card will revolve. Our subject is the headless man, the body of the man being drawn on one side, whilst the head is on the other. You show the child the man without a head, and he is surprised to find him perfect when the card is spun round. The chief difficulty is to find the exact position for the head to be drawn on the card, and great amusement can be got in the trying. A pair of compasses and a little thinking out will soon put things right.

For subjects there are no limit. A birdcage on one side and bird on the other gives a bird in a cage, a horse on one side and a field on the other gives a horse in a field, a drum on one side and a drummer on the other gives a man beating a drum, and so on. The two pictures, as it were, are on the retina at the same time.

Through the Villages.

By F. J. SCRIMGEOUR.

MANY and varied are the classifications into which the lantern fraternity may be divided; few of us are alike in skill and experience—all of us differ somewhat in the nature of our duties. From the London professional with his triple and latest make of cinematograph to the village amateur with his three-wick "Russian iron" we find all grades of lanternists in our brotherhood. Yet there are two great divisions into one of which every lantern operator may be placed—travelling lanternists and stationary lanternists. A stationary operator has many advantages over his brother who tours about the country. His work is done always in the same hall, and so actual labour is greatly minimised; the positions of screen and lantern require no thought—they have had their proper location often before, gas arrangements are familiar, brackets are well-known friends.

How different is the lot of the man who travels—who changes his hall every night—who never knows under what architectural disadvantages his next exhibition may be given. And yet there is much to compensate for such troubles. Monotony is well nigh an impossibility, variety is a dead certainty!

This everlasting change of hall has been my lot as lanternist. Memories come back to me now of halls and churches of almost every conceivable shape and form; some of these I shall never forget, so many difficulties did they present to satisfactory lanternism.

Yet until this autumn the methods of transit have always been orthodox. Trains, lorries and cabs are all regulation means of locomotion; and when a lantern tour in a caravan was recently proposed to me, I rather liked the novelty of the idea. The party consisted of six members. A route was first sketched out in part of Scotland. Large towns were avoided and villages of between one and two thousand inhabitants were shown the preference. As we were under religious auspices the churches all round the route were placed at our disposal; but in several instances we preferred to engage the public hall for our exhibition.

The caravan

itself had been specially built for the work and was admirably fitted throughout. Beneath the floor was a spacious "well" in which the heavier baggage was stored when we were actually on the move. Here were deposited the seven sets of slides which we carried with us, the lantern itself, and most of the heavier accessories. Of course, when selecting the apparatus for this novel tour portability had to be the first consideration. The chief box of the outfit was made of thin pine wood, and into it was placed the lantern itself with its set of lenses, burner, tubing, slide carrier and a tilting board, of the pattern described by me in a previous issue of the MAGIC LANTERN JOURNAL. The weight of cylinders, and the fact that we should frequently be at some distance from any railway station, put limelight out of the question, so I decided to adopt acetylene as the luminant. Let me here add my testimony to the efficiency of that form of light for discs up to 9 feet and short focus work. The framework of our screen was of thin bamboo, and the size of the sheet was about 9 feet square. Small, certainly, but quite large enough for our average audience of 250.

Our daily programme was something like the following in general nature, although of course the details were subject to continual variation. At about 7 o'clock a.m. the camp fires or stoves were lit and preparations for breakfast begun. That meal over, packing was proceeded with at once and our sleeping tent struck. All the boxes, bags, and cases were packed as tightly as possibly into the caravan. Then the horses were brought from the stable, and five minutes later we were off at a trot to the next place of exhibition. The distance between the villages varied considerably, from 5 to 10 miles being reckoned usual. A suitable camping ground had always been arranged in advance, and unpacking was proceeded with immediately on arrival. The cleaning of the lantern and the acetylene generator occupied the remaining part of the forenoon, and when dinner was over we transferred all the lantern plant to the hall or church of the evening.

Modern public halls in the villages and smaller towns of Scotland are always built on much the same plan, and are so designed as to be equally suited to touring concert parties and provincial theatrical "combinations." The platform is broad and often formed by a deep recess in the end wall. This arrangement permits of the easy fixture of the necessary curtain. On either side of the platform is a door opening into a side apartment—sometimes vestry, sometimes "green room." There is generally a straight gallery across the back wall. Such a hall is eminently suited to lantern exhibitions, and little or no consideration was required before we began preparations in such a place. The screen is high enough when on the bare platform, and an ordinary table plus the wooden box gives the lantern sufficient elevation. Seldom indeed did we take more than half-an-hour to place all in readiness in the public hall.

But churches gave us more trouble. Scottish "kirks" differ enormously in design. I do not know of a single typical characteristic which I can mention, unless it be the presence of a low platform of very variable size just beneath the pulpit. Here, when

Instrumental music

has been sanctioned the harmonium or American organ has been placed. If we found this arrangement we generally utilised the instrument to support our screen and "guyed" it by strings from the pulpit behind.

The placing of the lantern was often attended with much difficulty. Sometimes the legs of the vestry table were at just the proper distance apart to allow of its standing on the seats of two adjacent pews; when that was so the lantern was sufficiently high without the wooden box. But more often a broad board had to be fished out of some dusty pantry or dismal coal cellar, and made to bridge across the space between two pews. The arrangement of the gas brackets in some churches was most tantalising; on several occasions we found that the architect had placed three or four gas uprights down the very centre of the church. He was assuredly not a lanternist!

In such cases, of course, we had to take a side. We soon discovered the value of making friends with either the beadle or hall keeper as the case may be. He has it in his power to be a great help if he wishes; but he can also be an equally great hindrance. It is a good plan to ask his advice upon everything possible; where to put the screen, how high to place it, where to set the lantern, how much to elevate it. This piece of diplomacy we frequently adopted, and it served our purpose admirably. As a rule he knew nothing about such matters, but our request for advice always brought assistance, and tables, boards, nails and string were brought into existence in a truly marvellous way! When everything had been placed in readiness for the evening's exhibition we returned to camp and began the selection of slides. These were missionary in character, and each of the seven sets was representative of a different land. Sometimes China was the subject of lecture; sometimes it was India, West Africa, or Cape Colony. Tea was the next important event in the day's proceedings, and after that little was done until about half-past six.

One's attire for camp duties is not exactly suited to an evening lecture, so dressing and the donning of an orthodox costume kept us busy until after 7 o'clock. Eight was the hour of show, and by that time the generator was fully charged with calcium carbide, the slides arranged in accurate order, and the lanternist ready to "light up" at a moment's notice. In some villages the people have a **curious habit** of waiting outside the door in groups until one or two minutes past the hour, and then coming in with a rush and stampede. At one moment the hall shows nothing but empty benches, and the uninitiated imagines a perfect failure; at the next every seat is occupied, and standing room is getting scarce!

When all was over and the audience had dispersed we began the packing. The sheet was folded, the framework disjointed, and in a very short time all our boxes were ready for lifting. Sometimes they were taken back to the caravan that night; more frequently they were left to be called for in the morning. And so on we went, day after day for a whole month, travelling in the morning, resting in the afternoon, and lecturing at night. A life of variety it was beyond a doubt, and a more enjoyable combination of duty and pleasure I am sure I do not know.

Village Shows.

By VILLAGE SHOWMAN.

A VERY remunerative living can be made during the winter months by giving magic lantern entertainments in village schoolrooms. The life is a very healthy and interesting one. A little ready money (about £15), respectability of person, nerve, and business capacity are the chief points. Many such persons out of employment would benefit financially were they to engage in such a venture. Bad weather, such as rain and snow, will, in some villages, keep people away, but packed rooms are invariably the rule.

A good show is of course the chief thing; it must be chosen to suit all sorts and conditions of people. Say, for example, the county of Devon was taken as an experiment, the following programme would more than suffice to interest and amuse the most **fastidious Devonian.** A tour through North and South Devon (about 60 slides in all), with a short explanatory lecture, would make a good first item; to be followed by four or five comic tales, such as "Tiger and Tub," "Elephant's Revenge," or any amusing tales likely to cause roars of laughter, concluding with rackwork, lever, and comic slipping slides (about 30 in all), which would bring the evening's entertainment to a very pleasant ending. Always wind up by showing the most laughable slides; the secret of success lies in the fact of sending people away laughing.

A Russian iron lantern (oil is best for beginners) would cost about £4 4s., and a 10 feet screen (home-made) about 10s.

Some bills would be required. Have about one thousand printed with blank heading so that name of village and date could be written in, setting forth the programme and the benefit to be derived by a visit on the night in question. A county directory must also be purchased—a second-hand one could probably be obtained for about 4s.—and it should not be more than two years old. Refer to the villages by means of the directory. If the school is National write to the Rector or Vicar as the case may be, if Board School, write to the Clerk of the Board, enclosing a stamped addressed envelope for reply. Always send a courteous neatly written letter and enclose a bill. Allow seven days for replies; by that time the ayes and noes will have been received. Select the ayes and arrange dates, write again to the parson or clerk naming suitable dates. When all this has been satisfactorily arranged send a few bills (about 50) to the schoolmaster or schoolmistress for distribution among the children. Circularise the private residents and shopkeepers through the post. Always arrive in the village in the afternoon in order to distribute some "to-night" bills. After school has been dismissed, with the help of two strong boys arrange seats, etc. Take money at the door until entertainment commences and then entrust this office to schoolmaster or any likely lad.

Don't imagine that it is impossible to do all this, it is to be done by those who have any grit in them. Many years ago the writer thought this business out and embarked in it, since which time it has proved a success both artistically and financially.

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Experiences in Open-air Lantern Work.

By THE NOMAD.

A BRANCH of lantern work which I have found very interesting is open-air shows, and it occurred to me that perhaps my experience may be useful to others.

Two or three years ago I was asked to give some exhibitions in connection with the elections in my native city. The candidate suggested the usual exhibition of views in the club-rooms, the public being invited to attend. I, however, went to the nearest builders and bought two pieces of wood about 4 inches square and 16 feet long. I drove a small screw-eye into the end of each pole, passed a thin strong rope through the eyes, and then lashed the posts, about 10 feet apart, to some railings which were near. The sheet was then hoisted up between them, and the bottom edge tied every two feet or so to the railings. The lantern rested on a table inside the club-room, and the pictures were shown through the sheet. A specially good blow-through jet gave a fair light for this work. The experiment was, if anything, too successful, as the crowd which gathered within a few minutes almost completely stopped the traffic.

The next night two very large waggons were run on some waste land to provide a platform for the speakers. I had them wheeled apart and the shafts fastened up as straight as possible. A small sheet was then carried from one shaft to the shaft of the other waggon, the lantern being worked from between the waggons. A saturator was used in the lantern. On another occasion the sheet was nailed up to the gable end of a house.

Again, I had the posts held up by guy ropes (three to each post) tied to tent pegs, another rope being tied between the posts at the top. I have also had the sheet stretched from the bedroom window of one house to the bedroom window of the next when working in the slums.

Once, for a small fee, a gipsy showman lent us the apparatus on which he hung his big canvas picture, and this acted like a charm.

I have found a sheet 8 feet square quite as much as I care for outside, as the wind is very troublesome, and owing to the amount of light about the streets a small picture is absolutely necessary if a brilliant effect is desired. For the latter reason, too, I always if possible use a short focus lens, so that I may be as near as possible to the sheet. The corners of the sheet should be strengthened, or the wind will tear it to ribbons. I have had my sheet torn twice, and the thick posts (4 inches by 4 inches) have bent and swayed very much at times, but owing to guy ropes put on in time no

accident happened.

I would recommend a sheet of little value, as it will soon become stretched in the centre, and quite spoiled for ordinary indoor work.

The light to be used demands some consideration. The blow-through jet is not of much use unless one can show from a place where house gas is obtainable. If hydrogen has to be carried to the scene of the work, the mixed jet might as well be used for the sake of the better light. The ether saturator will be found about the handiest of all, as the lantern can be put anywhere, independently of coal gas supply. Once or twice, for very small pictures, in dark places I have used acetylene, and it answered very well. Oil light I have not tried for this work.

Whichever light is used, care should be taken to keep the lantern doors shut, and a good thick curtain close round the back, or the sharp click of a cracked condenser, owing to the cold wind, will be heard. I write from hard experience here, as four times I have heard that sound when showing in the open.

The best slides for showing outside are those of a bold character with not much fine detail. Slides with sketches, diagrams, sentences, etc., will be much in request. I always take about a dozen clean cover glasses with me, and a couple of sheets of carbon paper as used in the type-writer. If a diagram or notice is required, I simply put the carbon paper prepared side down on the glass with a piece of white paper over it, and then write or draw firmly on that. The carbon readily transfers to the glass, gives a dense black line, and does not easily smudge.

A concluding point. If possible have some one to keep the crowd away from the lantern if you are showing from the ground. The mischievous are everywhere, and being outside you cannot threaten to put them out without returning their money.

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The Correct Presentation of Dioramic Effects.

By THE SHOWMAN.

WE have now arrived at a time when many users of the cinematograph have become painfully aware that the best days of that at one time promising instrument are over, and no doubt some will be looking about for a new means of attracting the public taste, without departing from the realms of optical projection, and certainly dioramic effects will come in for a share of consideration.

But, at the outset, it should be noted that the registration of effects involves an amount of time and real, painstaking work, of which the majority of animated photograph exhibitors have not the slightest conception, and the reader is therefore warned that, if he expects to lay out a certain amount of capital in material and find the thing done, he will only find himself "done," and doomed to disappointment into the bargain. Moreover, the work referred to is of a kind that can best be done quietly in one's own house during the summer and early autumn, and before exhibiting really commences; but it has this advantage, that once done properly, it is done for ever, except in the highly improbable case of the slides being irretrievably damaged. Just in the same way that the finest cinematograph show gives not the slightest idea of the charm of a good dioramic exhibition, so the mere joining of a few films, which is almost the only work required before the production of the former, furnishes no clue to the hours spent in what I may term the private preliminaries of the latter.

I am sure no old subscriber will be offended by my saying that these pages are greatly read by "tyros," for as the older lanternists die off or go to the work——, I mean, are taken care of by their relations, their ranks are being recruited at a great rate by younger generations, hence the increasing circulation of the OPTICAL MAGIC LANTERN JOURNAL; and therefore we will next come to some understanding as to what is meant by "registration" and by "dioramic effects," especially as I have met persons apparently unable to distinguish between dissolving views, coloured photographs, and colour photography.

"Dioramic" is derived from two Greek words and means "seen through," and was the description given long ago to effects introduced into panoramas painted on cloth, in which a picture was painted on a transparent cloth, on the other side of which was painted another picture representing a different scene, or the same under different circumstances or at a different time; then, by raising the lights behind and lowering those in front, the front picture was made slowly or quickly to change into that on the back. There is a variation of this principle in which a scene with buildings, etc., in the foreground is painted on an opaque cloth, and the **clear glass** of the windows cut away and replaced by coloured gelatine affixed to the back. Then, on the lights at the back being raised, and those in front somewhat lowered, the coloured windows are brought into prominence, and the effect of evening with the buildings illuminated within is reproduced with great fidelity.

Slipping, lever, and rackwork slides are in no sense "effects," although the effect of motion is produced by all of them; but one or a combination of these principles may be, and often is, introduced into one or more of the slides forming a set of "effects," in order to more perfectly realise some particular scene, and if the movements are well made and properly manipulated, very telling results are thereby attained. "Registration" means the exact coincidence of every line of a picture with the corresponding line of the following picture, and when properly carried out, no indistinctness of the picture, alteration of the outline, or doubling of prominent objects can be detected whilst dissolving is being performed. The margin of the picture also must remain unaltered.

Thus, in a simple change from day to night, we shall become conscious of the change without having observed the manner of its accomplishment. Some may say, "Why bother? You dissolve from day to night, the audience see the difference, what more do you want? Why make a fuss about nothing?" Just so, and is the charm of a beautiful effect "nothing"?

What would you think of a conjuror if he, say, borrowed a silk hat from one of the audience, and after showing it perfectly empty, produced a real egg from it, if you saw him put the egg into it? You would say he was no conjuror, and rightly too; and yet you would feel hurt if told you were no lanternist. Don't misunderstand me, however. I make no claim for effects on account of any "magic" there may be about them, for these things are now not the secrets they once were, although there are yet millions in these islands who do not know how these changes are produced; but what I claim is, that as Nature herself is charming, so a reproduction of Nature is charming, in accordance with the degree of perfection attained.

Next we will proceed to consider our lantern and slides. The lantern may be a bi-unial, as long as we are content to use only those effects which both commence and finish with a single slide, so as not to **break the continuity** of dissolving, and which never require more than two lanterns to be going at once. Actually very few sets fulfil these conditions, especially the former; so that, with a bi-unial, we are almost entirely restricted to what I may term "sequence" slides, *i.e.*, night following day, and so on. So that, all things considered, a triple is to be preferred.

A lengthy dissertation on the technicalities of the triple lantern need not be entered into here. It will suffice to say that it should be light without being cramped, strong without being clumsy, well-made without being complicated, high-class without being expensive. Wealthy amateurs have from time to time had lanterns built to order regardless of expense, and loaded with every mechanical device ever evolved from the brain of man or the genius of the brass finisher, only to find that they were too heavy to be moved, like Robinson Crusoe's first canoe, and too intricate for practical work; and in the end, have been glad to get rid of them at a fraction of their original cost.

About a lantern a few things are necessaries, one or two more are conveniences, and all the rest are superfluities. Included in the first named are the registering runners with which the stages must be fitted. "Strips of brass" are sometimes suggested and often used for this purpose, but a "strip of brass" generally implies a piece cut from a sheet of yellow metal; what is needed for a runner is a gun-metal casting, properly designed and accurately finished. The top face of the runner should be three-eighths of an inch wide, and dead square to the condenser block; each end should be adjustable as to height by means of a screw, and the side of the stage away from the operator should be furnished with an adjustable stop to prevent the slides being entered too far, and the position of this stop is a point requiring attention. In many lanterns it is attached to the condenser block in the middle of the height, where, not only is it in the way of any slipping or panorama glass which has to pass beyond its frame, often only having the end of a glass slip to butt against; but, in the case of an ordinary slide block, it butts against a piece of mahogany nearly two inches wide, of which the grain is vertical, and it can easily be understood that, any swelling or shrinkage of this piece after the slide is registered will throw the whole picture out. The proper place for this stop, therefore, is on the top of the runner itself, where end grain will meet it in every case. It need not be of any great height, a mere heel a quarter of an inch high is ample; slipping glasses, panoramas, and other movements will then pass clear of it. Sometimes it is made to turn out of the way, but this is very rarely necessary, besides which, any swivelling arrangement of this kind prevents the stop being firm enough for our purpose. It should be adjustable, and this adjustment and those of the runner should be capable of being locked after being set. If preferred, the runner and stop of the middle lantern may be made fixtures in their correct positions, those in the top and bottom lanterns being adjusted to them in every case.

Many lanterns are now made with condenser blocks of brass, instead of mahogany, as has been usual for so many years, and runners, specially adapted for fixing to this class of lantern, are shown in Figs. I. and II. They are fairly simple, and can easily be made by anyone possessing a few tools, and what is most important, the ability to turn out accurate work. Fig. I. shows the runner for the middle lantern. It is permanently fixed in its correct position, and parallel to the baseboard, by two countersunk screws, ss, driven from the inside

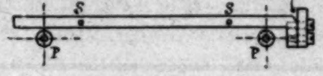

Fig. I.

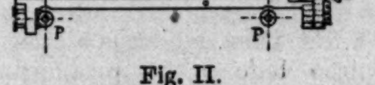

Fig. II.

of the plate forming the face of the condenser block; PP are the two lower pillars of the stage, and at R there is a recess formed by taking off the corner of the runner with the file, before the stop is put on. There is a reason for this. Any unconsidered trifle of foreign matter getting on to the runner during the show, such as a minute chip of glass from a mechanical slide, or splinter from one of the frames, would get pushed in front of the succeeding slide and jamb between the stop and the slide, keeping the latter out of its correct position; but, this recess being provided, it falls harmlessly into it and gives no trouble.

(To be continued.)

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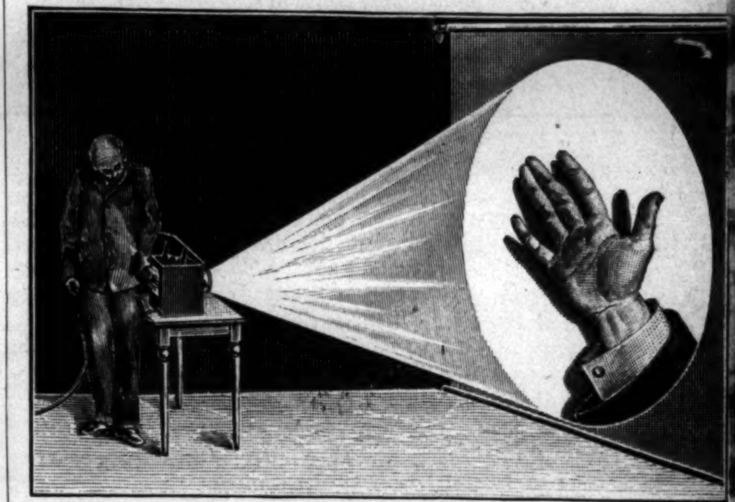
NEW APPARATUS.

THE RILFORD OXYGEN GENERATOR.

In our issue for January last, we gave full particulars and drawing of this useful automatic generator, which has been introduced by Riley Brothers, Ltd., of Bradford, Yorks. The generator first introduced, now known as the Rilford No. 1, was for the most part intended for use with single lanterns, but a new generator on the same principle but of slightly greater capacity has also lately been placed upon the market. This generator, which is known as Rilford No. 2, is capable of supplying the most ravenous jet, and with jets of average gas consumption will supply a bi-unial lantern. Messrs. Riley have issued a neatly got up pamphlet descriptive of these automatic oxygen generators; this we have read with the greatest care, and with our knowledge of the apparatus itself and its thorough performance, have pleasure in endorsing the statements contained therein.

SPEARLING'S CHILDREN'S OPAQUE LANTERN.

This lantern has been designed by Mr. Spearling solely with the idea of showing opaque objects and pictures on the screen. The whole of a drawing or painting 5 inches square can be shown 5 feet in diameter on the screen, with sufficient illumination for a small audience. Flowers, shells, the face and works of a watch, coins, and curios of various sorts can also be well exhibited. It is fitted with two incandescent gas burners, which only require ordinary house gas brought to them by an india-rubber pipe from the nearest gas bracket. It is, therefore, absolutely safe, and requires nothing but turning on the tap and lighting, and is at once ready for use. At the back of the lantern can be attached a double roller carrying a roll of paper on which children can make drawings and paintings, which can then be projected as a moving panorama on the screen. Christmas cards, butterflies, and similar objects show excellently. The instrument is extremely simple and easy to use. It may be obtained from Messrs. Newton & Co., 3, Fleet Street, E.C.



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PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No.	Recent Patent Applications.
18294.	11th September, 1899. Henry Wheeler. A method of showing a series of pictures in animation.
18924.	19th September, 1899. George Frederick Hatton. Improvements in appparatus for viewing and exhibiting living pictures or animated photographs.
19474.	27th September, 1899. H. O. Foersterling. Improvements in and connected with the production of photographs. (Complete.)
19593.	29th September, 1899. Arthur Lewis Adams, Walter Mallett, and Charles Willis Beevor. A new or improved optical appliance for use in connection with view finders for photographic or other purposes.

19843. 3rd October, 1899. Louis Antoine Garchey. Improvements in colour photography.

20300. 10th October, 1899. Abiathar Smitheman. Cinematphone or animated nature.

20621. 14th October, 1899. William Charles Louis Holland. An improved method of projecting the titles or descriptions of films used in cinematographs or other animated photograph machines.

SPECIFICATIONS ACCEPTED.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

18465 of 1898. Corthesy and Koopman. Means for obtaining rapid changes of wording or wordings or pictures, viz., in changing the presentation of one board or sheet for another, and applicable to advertising purposes and also generally.

20603 of 1898. Thompson (Bagrachow). Kinetoscopic and cinematograph apparatus applicable also to photographic apparatus.

22976 of 1898. Reulos. Kinematographs.

23099 of 1898. Holmes. Cinematograph.

15372 of 1899. Barth. Apparatus for displaying moving pictures or advertisements.

:o:

Correspondence.

PRESSURE GAUGES SHOULD BE TESTED OCCASIONALLY.

To Mr. J. Hay Taylor, Editor.

DEAR SIR,—I believe that on one or two occasions you have inserted a note in the OPTICAL MAGIC LANTERN JOURNAL, reminding users of gas cylinders that gauges employed for measuring the pressure in oxygen cylinders ought to be overhauled occasionally, and especially at the commencement of a new season, to ensure that the checks with which most of them are now fitted are in effective condition. Nearly all accidents with these gauges have been caused by sudden admission of high-pressure oxygen into the gauge tube. The gauges are fitted with checks to prevent this sudden admission of pressure. If the check is doing its work, the indicator of the gauge will only move slowly round the dial when full pressure is turned on from the cylinder. If the check has become loose, as it may do in time, it will allow the indicator to fly quickly round the dial when pressure is too quickly admitted; and this should be remedied at once.

Perhaps you may think it worth while to repeat the reminder in your next issue.

Faithfully yours,

W. MORTON JACKSON,

For Manchester Oxygen (Brin's Patent) Company, Limited,

Secretary and Manager.

Great Marlborough Street,
Manchester.

Notes and Queries.

J. Platt.—Your communication was duly sent to Mr. Theodore Brown. The book you enquire about will not be published in future.

Lanternist.—With two generators spoken of (but why not use one generator for the two burners), and two burners you should get a well lighted disc of about 6 feet in diameter. The burners are placed one behind the other.

W. W.—The early make of the ether saturator you speak of did not hold sufficient ether for one and a half hours. Probably the alteration by the makers was only to endeavour to prevent the ether from blowing out of the jet. The addition to the saturator, or rather the auxiliary saturator which you intend adding, should answer well, but we should prefer that the extra tube lay in a horizontal position in preference to hanging vertically. Be particular not to make the stuffing too tight.

Photophilus.—(1) Thanks for article "Ripple on Waves"; we will endeavour to insert it in next issue. (2) In order to project a parallel beam about an inch in diameter with your present apparatus, remove the objective altogether and place the illuminant exactly at the solar focus of the condenser, this will give you parallel rays. A little adjustment of the light will soon demonstrate the correct position. Now place in front (*i.e.*, outside) of the condenser a mask in which has been cut a hole of an inch diameter, when you will get parallel rays of this diameter. If you take any magnifying or burning glass and focus the sun's rays with it, the burning point is the solar focus and the rays coming to the lens are parallel. Now if a light is placed at the point alluded to, the rays after passing through the lens will, of course, be parallel, and the diameter of these rays will be according to the diameter of the lens.

T. W.—The sale of high-class triple lanterns has greatly fallen off the last few years.

Cinematographist.—The blemishes or spots on the film when projecting are seen long after the picture on which they happen to be on has passed the condenser; this is owing to what is termed persistence of vision. If the film did not make a dead stop at all, then such would not be noticeable.

M. Benham.—We note your remarks on the slides which you purchased. The binding and general get up of the two you enclosed are simply a disgrace. If you deal with the same party in future, better insist on having them sent on approval.

Anxious.—Not if we can help it.

Investment.—Better write to a financial paper, or get the advice of a reliable stockbroker. We cannot advise either way *re* taking up shares in a photographic company.

A. Mann.—(1) To get rid of the blackening of the lime, you must get the gas compressors to "burn out" your cylinder. (2) Willway's saturator. No danger whatever.

Retired Manufacturer.—Letter came about the time of going to press.

Address Wanted.—Will "Exhibitor," who has a "General Wants" advertisement in this issue, please forward his address, as it has been mislaid.